1961

Varying Degrees of Problem Recognition Among Farm Operators in Lake County, South Dakota, and their Probable Role in Future Adjustments in the County

Donald Herbert Silva

VARYING DEGREES OF PROBLEM RECOGNITION AMONG FARM OPERATORS IN LAKE COUNTY, SOUTH DAKOTA, AND THEIR PROBABLE ROLE IN FUTURE ADJUSTMENTS IN THE COUNTY

BY

DONALD HERBERT SILVA

A thesis submitted
in partial fulfillment of the requirements for the
degree Master of Science, Department of
Economics, South Dakota State
College of Agriculture
and Mechanic Arts

August, 1961

VARYING DEGREES OF PROBLEM RECOGNITION AMONG FARM OPERATORS IN LAKE COUNTY, SOUTH DAKOTA, AND THEIR PROBABLE ROLE IN FUTURE ADJUSTMENTS IN THE COUNTY

This thesis is approved as a creditable, independent investigation by a candidate for the degree, Master of Science, and acceptable as meeting the thesis requirements for this degree; but without implying that the conclusions reached by the candidate are necessarily the conclusions of the major department.

Thesis Advisor

Head of the Major Department

ACKNOWLEDGMENTS

The author wishes to express his sincere appreciation to Dr. Ray Schultz, thesis advisor, for his guidance and suggestions throughout this study. A special thanks is extended to Dr. Grant Cornelius for reading the manuscript and presenting constructive criticisms and helpful comments.

Thanks are also extended to Mr. Charles Kao and Mr. Donald Armstrong for their assistance in the field work, and to Mrs. Joan S. Rudd for typing the manuscript.

Especially appreciated was the patience and encouragement given by my wife, Joanne, during the preparation of this thesis.

This thesis is dedicated to the author's mother.

DHS

TABLE OF CONTENTS

Chapter

Page

LIST OF TABLES

Table

Page

Table

Page

Chapter I

INTRODUCTION

The Problem

"The need to increase farm income is apparent to those who study agriculture in this country today. Farm incomes in the United States and South Dakota have not kept pace with incomes of people in the rest of our economy."[1] United States non-farm income increased 40% from 1950 to 1959, while incomes of farm people increased only 15% in the same period.[2]

This situation indicates a need for adjustment. Increasing the farm size is one means of adjustment. However, as Table I demonstrates, rates of change in farm size vary between geographical areas and over time. In the past decade, the percentage change in farm size for Lake County, South Dakota, was less than the percentage change for economic area 4B as a whole.

Table I. Average Farm Size and Percentage Changes in Average Farm Size, Lake County and Economic Area 4B, South Dakota, Selected Years, 1940-1959

Year	Average Farm Size		Percentage Change	
	Lake County	4B	Lake County	4B
1940	263.4	212.5		
1945	274.5	217.0	4.2%	2.1%
1950	270.2	213.0	-1.6	-1.8
1954	276.3	223.8	2.3	5.1
1959	294.2	248.7	6.5	10.0

[1] Helfinstine, Rex D., "Ways to Increase Farm Income," South Dakota Farm and Home Research, Vol. XII, Agricultural Experiment Station, South Dakota State College, Spring 1961, p. 3.

[2] Ibid, p. 3.

Undoubtedly, there are many reasons for failures to adjust. One reason may be that operators do not recognize their problems. A recent study in Alabama showed that over 40% of the operators interviewed failed to recognize their problems.[3]

It is also possible that certain characteristics differentiate operators who are recognizing their problems from those who are not. By predicting future changes in characteristics associated with different abilities to recognize problems, it may be possible to anticipate future adjustments.

Classical Concepts

Problem recognition has not always been identified as a step in managerial adjustment. Classical economists primarily dwelt upon the method by which men should choose among alternatives, and gave little or no attention to the role of problem recognition in managerial adjustments.

According to classical economic theory, all decisions are rational decisions and men possess the quality, "economic rationality." "In general terms, the assumption of rationality means that every decision is taken for the sake of 'the difference it will make'—to quote Professor Viner's phrase—as against alternative decisions whose consequences are likewise estimated."[4] In more technical language, according to Hart, this amounts to saying that rationality means operating on the marginal principle.

---

[3]Lee, John E. and Chastain, E. D., "The Role of Problem Recognition in Managerial Adjustments," Journal of Farm Economics, Vol. XLII, The American Farm Economic Association, August 1960, pp. 650-659.

[4]Hart, Alfred G., Anticipations, Uncertainty, and Dynamic Planning, Augustus M. Kelley, Inc., New York, 1951, p. 4.

This idea of "economic rationality" was adopted as a theoretical assumption, and the widespread use of it appears to have hindered the more realistic development of decision principles. Researchers generally have failed to concentrate upon what takes place in the mind of a manager before choices are made among alternatives.

In 1946 and 1947, F. Machlup and R. A. Lester were arguing over whether businessmen did or did not operate on the marginalist principle.[5] This controversy was never settled, and a recent study in Kansas indicates the continuing desire to learn more about the role of marginal analysis in decision making.[6] But these studies also failed to see problem recognition as an explicit step in managerial adjustment.

In 1940, Hart broadened the role of the term rational and distinguished rationality at several levels.[7]

> "Starting with the level of action and working back into the problem of motivation, we can readily see
>
> (a) that rational acts are consistent with plans.
> (b) that rational plans are plans which offer the fullest satisfaction of desired ends attainable with the means at hand, in the light of estimates of the consequences of available alternative lines of action.
> (c) that rational estimates are estimates built up by correct analysis from the assembled information.

---

[5]Clemence, Richard V., Readings in Economic Analysis, Vol. II, Addison-Wesley Press, Inc., Cambridge, Massachusetts, 1950, pp. 104-180.

[6]Knight, Dale A. and Greve, Robert W., Use and Interrelation of Marginal Analysis to Other Analytical Processes by Farmers in Decision Making, Technical Bulletin 108, Agricultural Experiment Station, Kansas State University, Manhattan, Kansas, June 1960.

[7]"We need a more specific criterion of economic rationality, fitting our problem of the firm in a fluctuating world. This involves distinguishing rationality at several levels." Hart, op.cit., p. 4.

(d) that rational assembly of information is assembly on a basis which may reasonably be expected to give a satisfactory approximation to the true state of affairs."[8]

By viewing rationality at several levels, Hart brought to the fore the idea that what occurs prior to the final choice among alternatives is very important for correct choices. Thus, the existence of prior steps was demonstrated, even though these prior steps were not as precisely defined as they are today. Since 1951, the steps preceding the choice among alternatives have been outlined.

Decision Principles in Farm Management

An attempt was made in 1953 to define precisely the steps involved in the managerial process.[9] The steps outlined were believed to constitute the entire decision-making process. They were five in number.[10]

(1) observation
(2) analysis
(3) decision concerning problems under consideration
(4) action-taking
(5) acceptance of economic responsibility

These five steps have not since been refuted. However, they have been questioned as to their completeness.

---

[8]Hart, op.cit., p. 4.

[9]Johnson, Glenn L. and Cecil B. Haver, Decision-Making Principles in Farm Management, Bulletin 593, Kentucky Agricultural Experiment Station, University of Kentucky, Lexington, Kentucky, January 1953, p. 8.

[10]Ibid, p. 8.

The Interstate Managerial Survey[11]

The Interstate Managerial Survey was a North Central Region study. It was conducted cooperatively by the Risk and Uncertainty Sub-Committee of the North Central Farm Management Research Committee. The data were collected in 1954 and 1955.

The survey itself was exceedingly broad in nature. It was interstate and inter-disciplinary. Agricultural economists from seven agricultural experiment stations, as well as members of the Sociology and Anthropology Department of Michigan State University and personnel of the Iowa State College Statistical Laboratory, contributed to the formation of the study. Michigan State University, as originator, was primarily responsible for (a) designing and pre-testing survey schedules, (b) training interviewers, and (c) preparing the material for analysis.

The survey was conducted among 1,075 farm managers in the seven cooperating states. The study and survey were based upon the ideas and concepts stated in Johnson and Haver's bulletin on decision making principles in farm management.[12]

Although the study was based upon eight objectives, it is the second objective that is of primary concern here. This was, "to establish the applicability of the managerial functions of observing, analyzing, deciding,

---

[11]Interstate Managerial Project Committee, Summary Data from the Interstate Managerial Survey, Kentucky Agricultural Experiment Station Bulletin 669, University of Kentucky, Lexington, Kentucky, June 1959.

[12]See footnote number nine.

taking action, and accepting responsibility for action in describing the decision making process."[13]

It was found while concentrating upon the second objective, that problem recognition did perhaps have a role in the managerial process.

> "Indirectly, or by chance,...we did obtain some information on problem definition...in the I. M. S. Thus, some farm managers have difficulty in identifying problems; instances were observed where only some of the elements of problems had been identified clearly. However, our data also indicate that a number of farm managers had been able to define their problems rather completely."[14]

These summary statements about the managerial survey imply that varying degrees of problem recognition were found among operators. Also, these statements imply the need to focus attention upon problem recognition and learn more about its role in the managerial process.

Concentrating Upon Problem Recognition in the Managerial Process

The first study to concentrate upon problem recognition in the decision process was conducted in Alabama.[15] In 1957, data were collected from a sample of Farm and Home Development Agents and farm families for a

---

[13]Interstate Managerial Project Committee, op.cit., p. 5.

[14]Jensen, H. R., "Summary Statements About the Interstate Managerial Survey," Presented at Meeting of North Central Farm Management Research Committee, Chicago, October 24, 1960, p. 1.

[15]Lee, John E. and Chastain, E. D., Problem Recognition in Agriculture, Bulletin 319, Agricultural Experiment Station of the Alabama Polytechnic Institute, Auburn, Alabama, November 1959.

study of management practices in Alabama.[16] Two hundred and fifty-two farm operators were interviewed and 40% of these saw no opportunities to make more money.[17]

In the course of the study, the following hypotheses were tested:

> "...(1) farmers often fail to recognize the problems that confront them in their business endeavors; (2) satisfactory, deliberate adjustment to change is impossible if the basic problems are unrecognized; and (3) certain forces and individual characteristics influence the ability of farmers to recognize stresses and difficulties and to express those felt difficulties as problems."[18]

In relation to these hypotheses, there were the following specific conclusions:

> "(1) Farmers do experience difficulty in recognizing the problems and opportunities relevant to their business endeavors; (2) adjustment has been retarded because of the difficulty experienced on the part of farmers in recognizing problems; and (3) certain conditions and individual characteristics are related to the ability of farm managers to recognize problems and opportunities."[19]

The extent to which problem recognition does or does not occur may be somewhat different for operators not participating in intensive activities such as Farm and Home Development. Also, it may be that within the group of operators who had recognized problems, there was still

---

[16]"Farm and Home Development refers to special endeavors by the Extension Services and the United States Department of Agriculture to stimulate better farming and better living through better management of the farm and home as a unit." Ibid., p. 17.

[17]Ibid., p. 21.

[18]Ibid., p. 18.

[19]Ibid., p. 33.

considerable variation; that is, some may have been more complete and correct in their problem recognition than others. Perhaps, then, a lack of problem recognition is an even greater impediment to adjustment than the Alabama study implies.

What is a Problem?

A study of problem recognition among operators requires that the term problem be defined. A workable definition is found in the composition of a pragmatist.

John Dewey said, "...a true problem is something intellectual, not just an annoyance at being held up in what we are doing."[20] "In every case where reflective activity ensues, there is a process of intellectualizing what at first is merely an emotional quality of the whole situation."[21] According to Dewey, then, a problem involves reflective thinking, or the intellectualizing of a felt difficulty, and will be a well-worded question—a question asked with the anticipation of a solution.

Objectives of the Study

1. To estimate the level of problem recognition with the aid of selected indicators of farming success.
2. To estimate the extent to which problem recognition varies among managers in Lake County, South Dakota.

---

[20]Dewey, John, How We Think, D. C. Heath and Company, New York, 1933, p. 109.

[21]Ibid., p. 109.

3. To ascertain the amount of association between the level of problem recognition and present practices and selected characteristics.
4. To predict the role of varying degrees of problem recognition in future adjustments in Lake County.
5. To assess the results for recommendations for improvement of the present situation and further research.

Hypothesis

A significant proportion of farm operators in Lake County, South Dakota, is failing to recognize on-farm adjustment problems. This was the major hypothesis. Specific minor hypotheses were also tested, which were useful in carrying out the objectives of this study. In all cases except two, the "t" test was used. In the other two cases, the chi-square test was used.

Chapter II

PROCEDURE

It was considered desirable to take a sample of farms with maximum variation in farm type. Because there is greater diversity of major enterprises in south-eastern South Dakota than in most other areas of the state, this section was selected as the general sample area.

The next step was to select a particular county in this section of the state. It was decided that it be a county where adjustment has been relatively slow. Average farm size has increased more slowly in Lake County than in economic area 4B as a whole, during the past decade. Therefore, Lake County was chosen as the sample area.

The Sample

It was not known to what extent problem recognition varied among farm operators in the county. Therefore, a sample of approximately 10% of the total number of farms was drawn in order that the findings from the sample approximate the population. One hundred and twenty farms were selected from the county total of 1,172.

A stratified random sample was drawn. It was geographically stratified according to township in order to make the sample as representative of the county as possible. By drawing the sample in this fashion, variations in major enterprises among localities and the number of farms in each township were taken into consideration.

Estimating the Degree of Problem Recognition for Each Farm Operator

Measures of farm organization and management efficiency were the criteria for locating existing problems on individual farms. The following indicators of farming success were utilized:[22]

1. Yield Index for Corn and Oats
   A comparison of the yield per acre on a given farm with the average for the group.

2. Number of Work Units per Worker
   A conversion of all grains and livestock to a common measure, i.e., number of work units divided by the total number of work units to be handled on the farm by the number of workers on the farm, including all part-time workers.

3. Number of Animal Units per Worker
   A conversion of all livestock to a common measure, i.e., number of animal units divided by the total number of animal units by the number of workers on the farm, including all part-time workers. (Therefore number of workers will in some cases be a whole number and a fraction.)

4. Number of Animal Units per 100 Acres
   A measure of the intensity of livestock on the farm.

5. Crop Machinery Investment per Crop Acre
   A measure of the average amount of investment in crop machinery for each acre on which it is used.

6. Power Machinery Investment per Crop Acre
   A measure of the average amouht of investment in power machinery for each acre of crops.

7. Crop Acres per Worker

---

[22]Benrud, Charles H., and Aspelin, Arnold, Farm Business Management Data and Practices in South Dakota, Agricultural Economics Pamphlet No. 100, Agricultural Experiment Station, South Dakota State College, May 1959.

8. Per Cent Lamb Crop

The percentage which the number of lambs raised is of the number of ewes on hand at lambing time.

9. Eggs per Hen

The number of eggs sold plus the number used, divided by the average number of hens in the flock, including pullets after they have been moved to the laying house.

The null hypothesis was tested that there was no significant difference between east-county and west-county yields for corn and oats at the .05 level of significance. This hypothesis was rejected for both crops; therefore, the indexes for corn and oats were based on east or west county yields depending upon the location of each individual farm.

Because total crop machinery investment and total power machinery investment were required for two of the indicators, it was necessary to use a consistent method of estimating the present value of machinery. This estimate was obtained from a machinery dealers' guide book.[23] The value of trucks was estimated from "Agricultural Prices in South Dakota."[24]

In order to estimate the present value of each piece of machinery, straight line depreciation was applied to the estimated new cost. In all cases, a lower limit was placed upon the present value, in order to allow for salvage value.

All the indicators of farming success were then indexed. The index was based upon the county mean in each case except for corn and oats. There, east and west county sample averages were used.

---

[23] Official Tractor and Equipment Guide, National Retail Farm Equipment Association, Spring 1961.

[24] "Agricultural Prices in South Dakota," Crop and Livestock Reporting Service, March 1961, p. 90.

The index distribution for each indicator was then divided into thirds. This was done in order to determine whether the index in a particular case was in the upper, middle, or lower third of the distribution. An estimate was made of the standard deviation of each indicator. The mean of each index distribution was 100. The product of the ± value corresponding to 16 2/3% of the distribution above the mean and the estimate of the standard deviation was added to and subtracted from 100. This gave the approximate location of the middle one-third of the distribution. From these values, each individual index was placed in the upper, middle, or lower third of the distribution.

In the course of the interview, each operator was asked the following question: At present prices, are there some farming changes that might be investigated to see if your farm income could be increased?

If the operator's answer was "yes," he was asked to indicate what changes might be investigated. Then the answers to this question were analyzed in conjunction with the indicators, to estimate their correctness and completeness. Each response was then assigned one of three degrees of problem recognition on the basis of the following index.

Problem Recognition Index

(1) "Does not know" whether there are any changes that might be investigated, which if made might result in a higher net income. Shows no interest in such an investigation, but in fact significant needs for change exist.

Or, thinks there are no changes that might be investigated to see whether net income could be increased; when in fact there are significant needs for change.

(2) Thinks there are some changes that might be investigated to see whether a higher net income could be achieved. However, cannot indicate any particular changes that need to be studied.

Or, thinks there are some changes that should be investigated, and indicates one or more such changes, but is incomplete.

(3) Thinks there are some changes that should be investigated, indicates one or more such changes and is relatively complete. Or, feels there are no changes that should be investigated and is relatively correct.

Chapter III

THE ASSOCIATION BETWEEN VARYING DEGREES OF PROBLEM RECOGNITION AND SELECTED CHARACTERISTICS

The study revealed definite variations in the degree of problem recognition among farm operators. Of those operators included in the sample, 37% failed to see any need for changes when, in fact, changes were needed, as brought out by the indicators of farming success. Therefore, they were placed at the lowest level of problem recognition or level number one, as shown in Table II. Only 11% of the operators were relatively complete and correct in the appraisal of their situation, and thus were assigned the third or highest level of problem recognition. The remaining 52% of the operators saw the need for some changes, but were incomplete in their appraisal and, therefore, were assigned the intermediate problem recognition category.

Table II. Frequency and Percentage Distribution of Farm Operators, by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Degree of Problem Recognition	Frequency	Percentage Distribution
1	44	37%
2	63	52
3	13	11
Total	120	100%

Before such information can be of any real utility, operators at any particular problem recognition level must be further differentiated from operators at other levels of problem recognition. Thus, by seeing if there is any association between varying degrees of problem recognition and selected characteristics, the usefulness of this information may be enhanced.

Varying degrees of problem recognition were studied to ascertain what association might exist between them and other variables associated with the operators. These variables were divided into four broad categories.

The first category included characteristics which are largely uncontrollable as far as the work of the county agent and Experiment Station are concerned. These variables are age, formal education, and whether or not operators possess a special skill that would be useful for non-farm work. The second category of variables included operators' use of sources of information such as contact with the county agent, trips to the Experiment Station, and the reading of farm magazines.

The third category of variables included operators' use of certain practices that help assure success. These include studying farm records and making short-time plans. The final category consisted of selected values which were interpreted from operators' answers to certain questions. Included in the list of values were "efficiency and practicality," "progress," "traditionalism," and "farming as a way of life."

Varying Degrees of Problem Recognition and Selected Personal Characteristics

Age of Operators

Younger farm operators appeared to be more successful at problem recognition than older managers. Table III shows that 16% of the operators under 35 years of age were at the highest or third level of problem recognition, and only 6% of the operators between 51 and 65 years of age fell into the highest category.

Table III. Frequency and Percentage Distribution of Managers in Different Age Groups by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency				Percentage Distribution			
	35 and Under	36-50	51-65	66 and Over	35 and Under	36-50	51-65	66 and Over
1	5	12	24	3	21%	27%	50%	75%
2	15	26	21	1	63	59	44	25
3	4	6	3	0	16	14	6	0
Total	24	44	48	4	100%	100%	100%	100%

Formal Education

Table IV shows the frequency and percentage distribution of managers with ten years or fewer of formal education and managers with 11 or more years of formal education. Here, two null hypotheses were tested at the .05 level of significance.

The first hypothesis was that at the lowest or first level of problem recognition there was no significant difference between the percentage of managers with ten or fewer years of education and the percentage of managers with 11 or more years of education. Also, the same

hypothesis was tested for the third level of problem recognition. In both cases, the null hypothesis was accepted.

Nevertheless, from Table IV, 32% of the managers with education of 11 years or more were at the lowest level of problem recognition compared with 40% of the managers with ten or fewer years of education. In the higher education category, 14% of the managers were at the highest problem recognition level, in comparison with 9% in the lower education category.

Table IV. Frequency and Percentage Distribution of Managers with Ten or Fewer Years of Formal Education and those Managers with 11 or More Years of Formal Education, by Degree of Problem Recognition Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	10 or fewer	11 or more	10 or fewer	11 or more
1	28	16	40%	32%
2	36	27	51	54
3	6	7	9	14
Total	70	50	100%	100%

Special Skill for Non-Farm Work

Managers were asked if they possessed some special skill that would be useful in non-farm work. The frequency and percentage distribution of the yes or now answers are shown in Table V in conjunction with the three levels of problem recognition.

The null hypothesis, that there was no significant difference between the percentage of yes answers and the percentage of no answers at recognition level one, was tested. The null hypothesis was accepted.

However, the same hypothesis was tested for the third or highest level of problem recognition and in this case was rejected. Thus, there was a significant difference between the 18% who did possess a special skill and the 8% who did not, at the highest level of problem recognition.

In general, then, operators who possessed a special skill that would be useful in non-farm work were doing a better job of problem recognition than those operators not possessing a special skill. This implies that the operator who may not succeed in farming as a result of not recognizing his problems, will generally be the least well equipped of all operators to find sufficiently remunerative off-farm work. The operator who does possess a special skill is not likely to utilize this skill in an off-farm job because in general he is more successful in problem recognition and thereby has more probability of success.

Table V. Frequency and Percentage Distribution of Managers Who Possess a Special Skill and Those Who do not by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	Yes	No	Yes	No
1	11	33	29%	40%
2.	20	43	53	52
3	7	6	18	8
Total	38	82	100%	100%

Varying Degrees of Problem Recognition and Managers' Contact with Sources of Information

Information about new farming techniques is available from several sources. Included in the sources of information are the county agent, the Experiment Station, and farm magazines.

Contact with the County Agent

Operators' contact with the county agent may have been of a personal or impersonal nature. For example, contact may have included personal contact with the agent at meetings and through visits or telephone calls. Also, contact may have been of an impersonal nature such as reading newspaper articles, bulletins, or letters written by the county agent.

From Table VI, the null hypothesis that at problem recognition level one there was no significant difference between the percentage of managers who had no contact with the agent and those who did have contact, was tested at the .05 level of significance. The null hypothesis was rejected. Therefore, at the lowest level of problem recognition there was a significantly greater percentage of managers who did not have any contact with the agent, as compared with those managers who did have some contact.

Table VI. Frequency and Percentage Distribution of Managers' Contact with the County Agent by Level of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	No Contact	Some Contact	No Contact	Some Contact
1	13	31	68%	31%
2	5	58	26	57%
3	1	12	6	12
Total	19	101	100%	100%

It may be, then, that contact with the county agent is related to problem recognition. By increasing farm operators' contact with the county agent, more problem recognition may occur. At least, the percentage of operators at the lowest level of problem recognition may be reduced.

Twelve per cent of the operators who did have some contact with the agent were at the highest level of problem recognition, compared with 6% of the operators who did not have any contact. This difference was not found to be significant. Therefore, it may be inferred that the work of the county agent is not as beneficial to operators at this level of problem recognition as it is to operators at the lowest level of problem recognition.

Trip to Experiment Station

The null hypothesis that there was no significant difference between the percentage of operators who had made at least one trip to the Experiment

Station in Brookings, South Dakota, in 1960 and those who had not, was accepted. It was accepted for both the first and third levels of problem recognition.

A lesser percentage of operators who had made a trip was at the lowest level of problem recognition, as compared with those who had not made a trip. In the case of those who had made the trip, 21% were at the lowest level, whereas 40% of those who did not make the trip were at the lowest level.

Table VII. Frequency and Percentage Distribution of Operators Who Did and Did Not Make a Trip to the Experiment Station in Brookings in 1960, by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	Yes	No	Yes	No
1	4	40	21%	40%
2	12	51	63	50
3	3	10	16	10
Total	19	101	100%	100%

Reading of Farm Magazines

Farm operators were asked how many magazines they read. They were also asked how often they read such magazines. The responses are shown in Tables VIII and IX, respectively.

Table VIII. Frequency and Percentage Distribution of Managers' Contact with Farm Magazines, by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	None or One	Two or More	None or One	Two or More
1	9	35	50%	34%
2	8	55	44	54
3	1	12	6	12
Total	18	102	100%	100%

Of the operators reading two or more magazines, 12% were at the third or highest level of problem recognition, compared with 6% of the operators reading no magazines or a single magazine. This is shown in Table VIII. With regard to reading habits (in Table IX), 12% of the operators reading regularly were at the highest level compared with 8% of the operators reading "sometimes." Successful problem recognition may be related to the quantity of magazines read and also to the reading habits of operators.

Table IX. Frequency and Percentage Distribution of Reading Habits, by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	Sometimes	Regularly	Sometimes	Regularly
1	22	21	47%	30%
2	21	41	45	58
3	4	9	8	12
Total	47	71	100%	100%

Varying Degrees of Problem Recognition and Operators' Use of Selected Practices Related to Success

If a manager is to operate his business efficiently and profitably, it is generally assumed necessary that he follow certain accepted practices. Examples include keeping and studying farm records and studying price outlook information. These and other such practices were studied to ascertain whether they might be related to successful problem recognition.

Keeping a Set of Farm Records

The null hypothesis was tested that there was no significant difference at the .05 level between the percentage of operators who kept a set of records and those who did not, at the lowest level of problem recognition. The same hypothesis was also tested at the third level of problem recognition and, in both cases, the hypothesis was rejected. Thus, for both levels of recognition in Table X, there was a significant difference between the percentage of operators keeping a set of records and the percentage of operators not keeping a set of records.

The significant differences here seem to strengthen the assumption that keeping a set of farm records is a worthwhile practice. It appears to contribute to more successful problem recognition.

Table X. Frequency and Percentage Distribution of Managers Keeping or Not Keeping a Set of Farm Records, by varying degrees of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	Yes	No	Yes	No
1	33	11	33%	58%
2	55	8	55	42
3	13	0	12	0
Total	101	19	100%	100%

Studying Farm Records

Table XI shows the frequency and percentage distribution of operators who either studied or did not study their farm records for the purpose of increasing their income. It was found that there was a significant difference between the percentage who did and the percentage who did not at the first or lowest level of problem recognition. However, no significant difference was found between the percentages at the third level of problem recognition.

Table XI. Frequency and Percentage Distribution of Managers Who Did or Did Not Study Their Farm Records for the Purpose of Increasing their Income, by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	Yes	No	Yes	No
1	17	16	25%	48%
2	40	15	59	45
3	11	2	16	7
Total	68	33	100%	100%

Thus, 25% of the operators who studied their farm records were at the lowest level of problem recognition, as compared with 48% of those who did not. This implies that studying farm records may be a helpful prerequisite to problem recognition. By encouraging such a practice, the rate of farm adjustment may be increased.

Studying Price Outlook Information

Studying price outlook information and keeping up-to-date on price changes is a practice recommended to operators who are interested in maximizing their profits. This is necessary if adjustments to price changes are to be made.

The null hypothesis was tested that at the lowest level of recognition there was no significant difference between the percentage of operators who studied price outlook information and those who did not. This hypothesis was rejected. The same hypothesis was tested at the third level of problem recognition in Table XII, and in this case it was accepted.

The studying of price outlook information appeared to be helpful to reducing the number of operators at the lowest level of problem recognition. More problem recognition may occur, then, through the promotion of this practice.

Table XII. Frequency and Percentage Distribution of Managers Who Did or Did Not Study Price Outlook Information, by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	Yes	No	Yes	No
1	33	11	33%	58%
2	56	7	56	37
3	12	1	11	5
Total	101	19	100%	100%

Making Short-Time Plans

Operators were asked if they made short-time plans for their farm. At the lowest level of problem recognition, a significant difference was found between the percentage of operators who did and the percentage of operators who did not. At the third level of problem recognition in Table XIII, however, no significant difference can be found. Thus, it appears that the number of operators at the lowest level of problem recognition might be reduced if they were encouraged to make short-time plans.

Table XIII. Frequency and Percentage Distribution of Managers Who Did or Did Not Make Short-Time Plans for their Farm, by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	Yes	No	Yes	No
1	34	10	32%	67%
2	58	5	55	33
3	13	0	13	0
Total	105	15	100%	100%

Measuring Yields from Fertilizing

Measuring yields is one way of determining the short-run benefits of fertilizing. No significant difference was found in Table XIV, at either problem recognition level one or level three, between the percentage who had and the percentage who had not measured to see if fertilizing changes the yield. However, a lesser percentage of those operators who had measured were at the lowest level of problem recognition as compared with those who had not measured.

Table XIV. Frequency and Percentage Distribution of Operators Who Had or Had Not Measured to See if Fertilizing Changes Yields, by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	Had Measured	Had Not Measured	Had Measured	Had Not Measured
1	13	22	28%	37%
2	27	31	59	52
3	6	7	13	11
Total	46	60	100%	100%

Selected Values and Varying Degrees of Problem Recognition

An individual's values, that is, his ideals or customs, are widely assumed to influence his patterns of behavior. Operators were asked the following series of questions in order to ascertain whether they held certain values assumed to affect problem recognition. The supposed values are shown in the parentheses following the answers.

1. In being a successful farmer, what is most important?

   a_____keeping records (Efficiency and Practicality)

   b_____working hard (Hard Work)

   c_____weigh each farm practice against the profit that it gives you (Efficiency and Practicality)

   d_____staying with practices you have always used (Traditionalism)

2. To help United States' farmers, the most important goal would be:

   a_____to keep the family size farm (Farming as a way of life)

   b_____to move toward the big commercial farm (Progress)

   c_____to keep farming as a way of life (Farming as a Way of Life)

   d_____to make each farm as efficient as possible (Progress)

3. In deciding whether to change a farming practice it is most important:

   a_____to be among the first to change if it is a good practice (Individualism)

   b_____to be among the last to change (Security)

   c_____to change as soon as most of your neighbors have changed (External Conformity)

   d_____to change if your neighbors say it is a good practice (External Conformity)

Table XV. Frequency and Percentage Distribution of Farm Operators Holding Values Indicated by the Answers to the Question, "In being a successful farmer, what is most important?", by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency			Percentage Distribution		
	Efficiency & Practicality	Hard Work	Tradi-tionalism	Efficiency & Practicality	Hard Work	Tradi-tionalism
1	24	17	3	29%	59%	43%
2	49	11	3	57	38	43
3	11	1	1	14	3	14
Total	84	29	7	100%	100%	100%

Operators at the third level of problem recognition were heavily distributed toward "efficiency and practicality." However, operators at the lowest level of problem recognition were less heavily distributed toward "efficiency and practicality" and more toward "hard work" and "traditionalism."

Traditional practices are generally considered very difficult to alter. Accordingly, vigorous educational programs would be necessary to change such practices.

Table XVI. Frequency and Percentage Distribution of Farm Operators Holding Values Indicated by the Answers to the Question, "To help United States' farmers, the most important goal should be?", by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	Farming as a Way of Life	Progress	Farming as a Way of Life	Progress
1	39	6	47%	16%
2	37	25	45	68
3	7	6	8	16
Total	83	37	100%	100%

At the lowest level of problem recognition, the operators were heavily distributed toward "farming as a way of life" as shown in Table XVI. Also, at the lowest level of problem recognition, in Table XVII, operators were heavily distributed toward "conformity." At the highest level of problem recognition, however, operators were more heavily distributed toward "individualism."

Table XVII. Frequency and Percentage Distribution of Farm Operators Holding Values Indicated by the Answers to the Question, "In deciding whether to change a farming practice, it is more important to?", by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency			Percentage Distribution		
	Individualism	Security	Conformity	Individualism	Security	Conformity
1	9	1	34	22%	50%	44%
2	22	1	40	54	50	52
3	10	0	3	24	0	4
Total	41	2	77	100%	100%	100%

Chapter IV

IMPLICATIONS FOR FUTURE ADJUSTMENTS IN LAKE COUNTY

Future On-Farm Adjustments

Problem recognition is a necessary part of on-farm adjustment. By estimating future changes in characteristics associated with successful problem recognition, it may be possible to estimate the extent of future adjustments in the county.

Changes have been taking place in the average age of operators in the county. The average age of operators in Lake County was 46.4 in 1940,[25] 46.7 years in 1954, and 47.2 in 1959.[26]

The median level of formal education for people in South Dakota was 8.5 years in 1940,[27] and 8.9 years in 1950.[28]

Are the operators with more education in all age groups more successful in problem recognition? The answer to this question may have implications for future adjustments.

---

[25]United States Bureau of Census, Census of Agriculture, North Dakota and South Dakota, 1954, Government Printing Office, Washington, D. C., 1956.

[26]United States Bureau of Census, "Preliminary Census of Agriculture, Lake County, South Dakota, 1960," Government Printing Office, Washington, D. C., 1961. The average age of operators in the sample was 47.9.

[27]United States Bureau of Census, Statistical Abstract of the United States--1940, Government Printing Office, Washington, D. C., 1941, p. 113.

[28]United States Bureau of Census, Statistical Abstract of the United States--1950, Government Printing Office, Washington, D. C., 1951, p. 121. Average education from the sample was 9.3.

Two-thirds of the operators 35 years of age or less had 11 or more years of education. However, as seen in Table XVIII, there was no evidence of a positive relationship between education and successful problem recognition. Twenty-five per cent of those who had ten or fewer years of education were at the highest level of problem recognition compared with 13% of the operators who had 11 or more years of education.

Table XVIII. Frequency and Percentage Distribution of Farm Operators 35 Years of Age or Less, at Two Different Education Levels, by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	10 years or fewer	11 years or more	10 years or fewer	11 years or more
1	1	4	13%	25%
2	5	10	62	62
3	2	2	25	13
Total	8	16	100%	100%

Forty-eight per cent of the operators 36 to 50 years of age had 11 or more years of formal education. Nineteen per cent of these were at the highest or third level of problem recognition compared with 9% of the operators having ten or fewer years of education. However, it should be noted that the small frequencies at the highest level of problem recognition may not approximate the true state of affairs. A positive relationship between education and problem recognition may exist, but the data are inadequate for such an inference to be made with assurance.

Table XIX. Frequency and Percentage Distribution of Farm Operators 36 to 50 Years of Age at Two Different Education Levels, by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	10 years or fewer	11 years or more	10 years or fewer	11 years or more
1	6	6	26%	29%
2	15	11	65	52
3	2	4	9	19
Total	23	21	100%	100%

With regard to Table XX, the null hypothesis was tested at the .05 level of significance. The hypothesis stated that there was no significant difference at the lowest level of problem recognition between the number of operators with ten or fewer years of education and the number of operators with 11 or more years of education. The null hypothesis was rejected.

Table XX. Frequency and Percentage Distribution of Farm Operators Over 50 Years of Age at Two Different Education Levels, by Degree of Problem Recognition, Lake County, South Dakota, March, 1961

Level of Problem Recognition	Frequency		Percentage Distribution	
	10 years or fewer	11 years or more	10 years or fewer	11 years or more
1	21	6	54%	46%
2	16	6	41	46
3	2	1	5	8
Total	39	13	100%	100%

There is not sufficient evidence to support the hypothesis that problem recognition varies with formal education. However, the result could be different over a wider range in years of formal education. Also, no significant relationship was established between varying degrees of problem recognition and age.

If more formal education and increasing average age will not in themselves increase problem recognition, perhaps alternatives can be found. By promoting more study of price outlook information and farm records, and by encouraging more contact with the county agent and the making of more trips to the Experiment Station, problem recognition may be increased.

Future Off-Farm Adjustments

Operators were asked if they possessed a particular skill which they felt would be useful in off-farm work. Only 32% indicated possessing such a skill. In most cases, the skills mentioned were in the category of mechanical or carpenter work.

From Table XXI, it is seen that only 16% of the operators possessing a special skill were 35 years of age or younger. At the same time, 23% of the operators who did not possess a special skill were 35 years of age or less.

Table XXI. Frequency and Percentage Distribution of Operators Who Do or Do Not Possess Special Skills, by Age Group, Lake County, South Dakota, March, 1961

Age Group	Frequency		Percentage Distribution	
	Skill	No Skill	Skill	No Skill
35 & Under	6	19	16%	23%
36 to 50	16	27	42	33
51 & Over	16	36	42	44
Total	38	82	100%	100%

Seventy-six per cent of the operators 35 years of age or younger would probably have to accept unskilled employment, if they chose to leave or were forced to leave farming. Some of these operators would have to support large families on unskilled labor earnings.

A larger percentage of operators over 35 years of age possessed a special skill than those 35 or under. However, the situation is still less than desirable. It is often very difficult for an older individual to obtain off-farm work on a competitive basis with a younger person.

Managers were asked if they would be interested in obtaining free training for non-farm work. Forty-eight per cent answered in the affirmative. Sixty-five per cent of the operators under 51 years of age indicated an interest compared with only 27% of the operators over 51 years of age.

Table XXII. Frequency and Percentage Distribution of Operators Who Do or Do Not Desire Free Training, by Age Group, Lake County South Dakota, March, 1961

Age Group	Frequency		Percentage Distribution	
	Yes	No	Yes	No
35 & Under	15	10	26%	16%
36 to 50	29	14	50	23
51 & Over	14	38	24	61
Total	58	62	100%	100%

Referring to Table XXII, the null hypothesis was accepted at the .05 level of significance. The hypothesis stated that there was no significant difference between the frequencies of yes and no answers for operators 35 years of age and under. However, the same hypothesis was tested for operators 51 years of age and older and in this case was rejected. Thus, significantly fewer operators in this age category desired free training compared with those who did.

In regard to their future plans, 80% of the operators said they were interested in making a living entirely from the farm, while a majority of the remaining 20% indicated plans to retire from farming in the near future. The plan to retire is necessarily associated with age. This is an important factor in explaining why 61% of the operators not wanting free training were 51 years of age or older. Also, it may be that the operators 51 years of age or over who were not planning to retire soon felt they were too old to learn a new trade.

From the data, it does not appear that the rate of on-farm adjustments in Lake County will increase as a result of changes in the age and formal education of operators. Adult education programs, such as those set up by county agents, should promote practices that are specifically related to successful problem recognition.

Also important is the fact that many operators who are not adjusting do not possess a special skill that would be useful in non-farm work. Thus, if these operators left farming, their chances of obtaining employment are reduced because they do not possess a skill. Such persons need help whether they leave or remain on the farm.

Chapter V

SUMMARY

Decision-making theory in the past has failed to recognize the role of problem recognition in the decision framework. With the gap in the framework now identified, it has become possible to study problem recognition as a specific phase in the decision process. The present study focused attention upon problem recognition and treated it as a variable.

It was found that 89% of the operators interviewed in Lake County, South Dakota, had significant needs for change, when in fact they failed to recognize these needs. Only 11% of the operators were relatively complete and correct in the appraisal of their situation. Evidently the failure to recognize problems is a very significant impediment to on-farm adjustment.

The study revealed that certain characteristics were more frequently associated with operators at the highest level of problem recognition than with operators at the lowest level of problem recognition. Operators at the highest level utilized accepted managerial practices, such as studying price outlook information or studying farm records, more than operators at the lowest level of problem recognition. Also, it was found that a lesser percentage of operators who did have some contact with the county agent or had made a trip to the Experiment Station were at the lowest level of problem recognition as compared with the operators who did not have any contact with the agent or had not made a trip to the Experiment Station.

On the average, operators at the lowest level of problem recognition possessed fewer special skills that would be useful in off-farm work, than

operators at the highest level. This indicates that many of these operators, if they left farming, would be forced to seek unskilled employment. Also, older operators in this situation may indeed have a difficult time finding employment.

Forty-eight per cent of the operators indicated they would like free training in order to acquire skill that would be useful in non-farm work. Most of those desiring training were between the ages of 36 and 51. Few operators over 51 wanted free training. This is explained by the fact that many of these had plans to retire soon. Also, it is possible that others in this age group felt they were too old to learn a new trade.

No significant relationship between formal education and varying degrees of problem recognition was evident from the data. It is possible, however, that over a wider range in the years of education, a positive relationship may exist.

Practices such as studying price outlook information, studying farm records, and making short-time plans were more frequently associated with operators at the higher levels of problem recognition. Also, there was a positive relationship between the degree of problem recognition and contact with the county agent at the lowest level of problem recognition, indicating that by increasing these operators' contact with the agent, the percentage at the lowest level of problem recognition may be reduced.

If the rate of adjustment is to be increased, then, it can possibly result through the redirected efforts of the county agent and the Experiment Station. Such agencies can facilitate adjustment by promoting practices that were found to be associated with successful problem recognition.

Chapter VI

RECOMMENDATIONS

Only 11% of the operators interviewed were relatively complete and correct in their problem recognition. Thirty-seven per cent of the operators felt there was nothing they could do at present prices to increase their income, when in fact, significant changes were needed. The remaining 52% of the operators were only partially correct in the analysis of their situation.

This widespread inadequacy of problem recognition among operators demonstrates the need for improvement if more adjustment is to take place. An initial step toward an improved situation may perhaps be taken by individuals or groups supplying farm operators with reliable information.

The county agent is one source of reliable information available to the operator. At the lowest level of problem recognition, there was a significant difference between the percentage of operators who had no contact with the agent and those who had some contact in 1960. This may indicate that if the county agent could encourage more operators to attend meetings and conscientiously read the distributed articles and bulletins, the percentage of operators at the lowest level of problem recognition could be reduced. Perhaps, also, there should be more emphasis on supplying information that is relevant to problem recognition.

The county agent might explain to operators why price outlook information should be studied, why farm records should be studied and why short-time plans should be made. Also, he might explain how to proceed in following these practices. This is necessary because it cannot be

assumed that operators know either the importance of such practices or the procedure for following them.

No significant difference at the highest level of problem recognition was found between the percentage of operators who did have some contact with the agent and those who did not. This may indicate that operators at the highest level of problem recognition are not deriving as much benefit from their contact with the agent as operators at the lowest level. Therefore, if the agent were to bring his information more up-to-date, it may be more beneficial to operators who are doing the best job of problem recognition.

Only 21% of the operators who had made a trip to the Experiment Station in Brookings were at the lowest level of problem recognition, as compared with 40% of those operators who had not. If operators, through promotional efforts by the Experiment Station, were encouraged to make trips to the Station, perhaps the number of operators at the lowest level of problem recognition may decrease. In addition, the Experiment Station might aid the county agent in educating operators on the reasons and procedures for utilizing the previously mentioned accepted practices.

Further research could be designed to investigate varying degrees of problem recognition in other geographical areas and, perhaps, for a different distribution of farm types. This would provide a broader basis for the making of generalizations with regard to varying degrees of problem recognition among operators.

Perhaps the printed material distributed to operators by the county agent and the Experiment Station is not in a readily usable form. Operators

may not be able to use the material simply because of the way in which it is presented. Further research might be designed to evaluate the adequacy of the available means of communication with farm operators. Out of such a study might come specific suggestions for how to improve communication with farmers, with the objective of improving problem recognition.

LITERATURE CITED

1. Agricultural Prices in South Dakota, Crop and Livestock Reporting Service, March, 1961.

2. Benrud, Charles H. and Arnold Aspelin, Farm Business Management Data and Practices in South Dakota, Agricultural Economics Pamphlet No. 100, Agricultural Experiment Station, South Dakota State College, May, 1959.

3. Clemence, Richard V., Readings in Economic Analysis, Vol. II, Addison-Wesley, Press, Inc., Cambridge, Massachusetts, 1950.

4. Dewey, John, How We Think, D. C. Heath and Company, New York, 1933.

5. Hart, Alfred G., Anticipations, Uncertainty and Dynamic Planning, August M. Kelley, Inc., New York, 1951.

6. Helfinstine, Rex D., "Ways to Increase Farm Income," South Dakota Farm and Home Research, Vol. XII, Agricultural Experiment Station, South Dakota State College, Spring, 1961.

7. Interstate Managerial Project Committee, Summary Data from the Interstate Managerial Survey, Kentucky Agricultural Experiment Station Bulletin 669, University of Kentucky, Lexington, Kentucky, June, 1959.

8. Jensen, H. R., "Summary Statements About the Interstate Managerial Survey," Presented at Meeting of North Central Farm Management Association Research Committee, Chicago, October 24, 1960.

9. Johnson, Glenn L. and Cecil B. Haver, Decision-Making Principles in Farm Management, Bulletin 593, Kentucky Agricultural Experiment Station, University of Kentucky, Lexington, Kentucky, January, 1953.

10. Knight, Dale A. and Robert W. Greve, Use and Interrelation of Marginal Analysis to Other Analytical Processes by Farmers in Decision Making, Technical Bulletin 108, Agricultural Experiment Station, Kansas State University, Manhattan, Kansas, June, 1960.

11. Lee, John E. and E. D. Chastain, Problem Recognition in Agriculture, Bulletin 319, Agricultural Experiment Station of the Alabama Polytechnic Institute, Auburn, Alabama, November, 1959.

12. Lee, John E. and E. D. Chastain, "The Role of Problem Recognition in Managerial Adjustments," Journal of Farm Economics, Vol. XLII, The American Farm Economics Association, August, 1960.

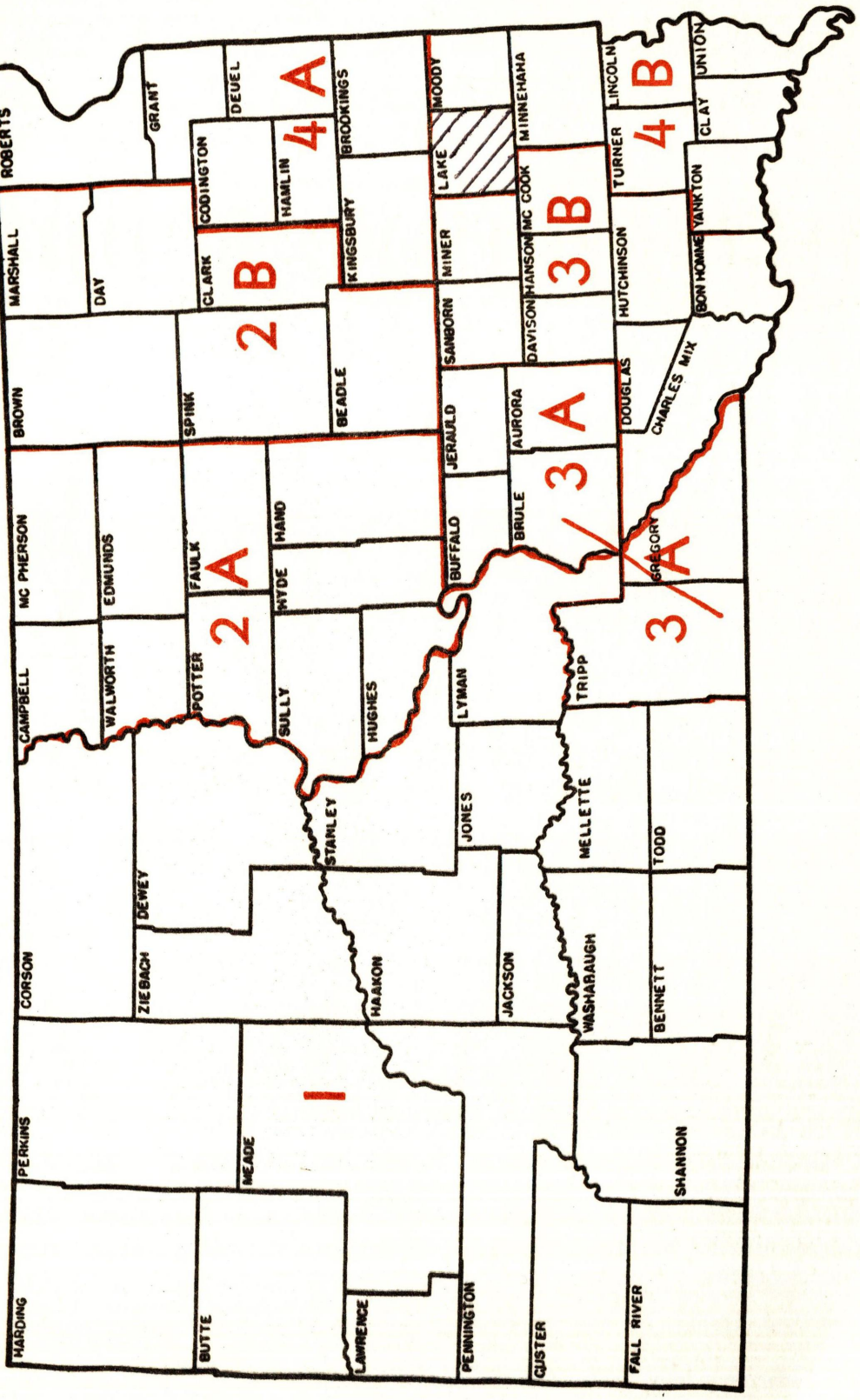
13. Official Tractor and Equipment Guide, National Retail Farm Equipment Association, St. Louis, Missouri, Spring, 1961.

14. United States Bureau of Census, Census of Agriculture, North Dakota and South Dakota, 1954, Government Printing Office, Washington, D. C., 1956.

15. United States Bureau of Census, "Preliminary Census of Agriculture, Lake County, South Dakota, 1960," Government Printing Office, Washington, D. C., 1961.

16. United States Bureau of Census, Statistical Abstract of the United States--1940, Government Printing Office, Washington, D. C., 1941.

17. United States Bureau of Census, Statistical Abstract of the United States--1950, Government Printing Office, Washington, D. C., 1951.



Map of South Dakota Showing Economic Area 4B and Lake County